Reciprocating hydraulic prime mover for water lifting[63]

CONSOLATION

Noushad K.T. (27) is from Kizhupparambu Panchayat, Malappuram district, Kerala. He is a mechanical fitter and supervisor in a re-rolling mill at Kozhikode where he has been working for the past seven years. He enrolled for a part time diploma course in Mechanical Engineering, but due to his exclusive interest in building this device he was unable to do justice to other topics and failed some papers and is planning to attempt them again. His father and a brother are working in the coconut husk business and another brother is a driver.

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Genesis

The idea came to him after he went to a science fair while in school and saw a model of how the rain water just drains off into the sea through the streams and brooks. Ever since, the thought of utilizing this free energy, which he felt was simply being wasted especially in a scenario where we are facing an energy crisis and with the world's renewable resources being depleted at an alarming rate, remained at the back of his mind. Though he was always interested in Maths he had to take commerce group after his 10th standard and later did a course in plumbing from an ITI. Following this he worked for about six months in a small industry and then joined a re-rolling mill in Kozhikode.

It was while working here that he decided to put thought to action and pursue his idea of utilizing the energy in our streams and brooks. He enrolled in a part-time diploma course in Mechanical engineering offered by a polytechnic institute and attended evening classes from 5.30-10p.m. and in the meantime worked on this project at every opportunity. On consulting an engineering trainee at the company where he worked, he was advised to refer a book on Hydraulic fluid machines which proved very useful. It took him about a year to design the device and a year and a half more to carry out various trials and make a working model. He was allowed to use scrap from the company for his various trials and was also given a 2500 litre tank at a nominal rate for his prototype. For the final production of the prototype, he approached the owner of the company he had earlier worked with, who agreed to make the device at the company at no cost, except that of the materials. Noushad regularly visited and monitored the progress at the company and once it was completed, with the help of friends, he installed the working model in a stream in a reserve forest near his home. But unfortunately he had to dismantle it later as the authorities refused to give him permission to operate it there.

The Innovation

A tank is placed or a dam is made in any small stream or brook. Inside this there is a float which is made of something that

is light yet strong- Noushad has welded together 2 aluminium dishes used for solidifying latex. When the water level in the tank reaches a certain height, water enters the float through four valves which open when two wheels at the back of the float strike against certain iron sheets attached for this purpose. Filled with water the float sinks. Once it reaches the bottom, due to the force of gravity and atmospheric pressure a siphonic valve at the bottom of the float opens and water in the float is pushed out of the float and the tank through a pipe and the float rises up again. The whole process is repeated. The force produced by this motion up and down can be used for lifting water to a certain height.

Advantages

This device works automatically as long as water level is maintained and is functional even if there is a slope of at least one meter in a stream or brook and if the volume of water flow is at least one litre per second. Noushad points out that in an ordinary stream or brook the volume of water flow is usually 25-50 litre/s and he claims that this force can even be used for generating a small amount of electricity, which would be useful in an area where there is none. According to calculations, in one day this device can fill a reservoir of about 1500 litres capacity even if the flow of water is 1litre/s. The biggest advantage of this device is that it utilizes energy which is free, easily available and renewable.

Experts' comments

The Professor and head, Dept of Mechanical Engineering, National Institute of Technology, Calicut visited the site on 6th October, 2004 along with three other staff members. They found that the pump could pump upto "a height of 50 m without any external power, using buoyant force of water as well as force of gravity. The amount of water that can be lifted using this equipment from a stream of abundant water is very small. However, it can pump 1000 litres of water within 24 hour duration at 50 m height." They recommend the pump for remote hill areas where electricity isn't available.

The struggle for support

Noushad at first approached CWRDM-The Centre for Water Resources Development and Management at Kunnamangalam with the details of the device but was disappointed with their response. He comments with sorrow and surprise that they did not even understand when he tried to explain its functioning nor did they send anyone to come and see the device. Trying a different avenue he personally spoke to the local MLA but this attempt also produced no results. Undeterred he then approached an organization focusing on water resource management in the state, but they declared that they were not interested in such small projects. As a last measure he has forwarded an application through CWRDM to the Department of Science and Technology, Thiruvananthapuram, requesting funds to make a small unit at Nilambur in a tribal colony which already has a pump house situated next to a river. But currently in this colony, they are unable to pump water from the river as this would require a diesel engine which they cannot afford. By installing Noushad's device the twin objectives, of solving the water problem and demonstrating the utility of the device as a model which can be replicated, would be achieved. But till date he has not received any response. On another front, his gram panchayat has asked him to give a project report but Noushad admits that, disillusioned with his previous futile attempts, he feels that this too would turn out to be an empty promise. Noushad has also approached a

lawyer and has applied for registration of the device at the Patent Regional Office.

Helping hands

But from one quarter Noushad has received unfailing support- his friends and two brothers offered encouragement and contributed physical labour whenever necessary. His parents initially had qualms about the time and money he was spending on the building of the device, but as he was drawing on his own salary they did not oppose his decision. Now, their pride in him is evident, when they describe his determination to succeed in completing it even though he used to come from work only once a week and would then devote all his time to it.

And unexpected help came from Mr.Balakrishnan, a civil engineer who hails from the same village as Noushad. On seeing the drawings of the device, he has asked Noushad to install it on his land. He has agreed to finance it and hopes that this prototype would be helpful in promoting the utility of the device. He states that in Kerala this device is highly useful, especially as there is a lot of water released from dams which just drains away, so this device can be used to lift water to a certain height without the use of any other power except the force of buoyancy. He is full of praise for Noushad for creating this device on his own with little or no formal training, but with his background as a civil engineer he also points out that the device will not be useful in areas where there is water shortage, since for the device to lift water to a particular height, a certain amount of water must be pushed out leading to its wastage.

A heart-felt wish

"*Our drawback is not a dearth of ideas, but a lack of timely support and guidance*," thus declares Noushad expressing his hope for an agency which anybody who has an idea can approach. This agency should be able to provide guidance and direction to the venture, give technical assistance where possible or suggestions on how to carry it forward or whom to approach. He has suffered from the lack of such support and hopes that at least in the future, other innovators won't have to tread such a rough path. On asking him about his dream, he reveals that he wants to do research and especially in the field of utilizing existing energy sources for the improvement of agriculture. He would like to work further on this device and improve it. He explains that he has a lot of ideas but money is a constraint and so…. Listening to him one detects a note of resignation and can't help wondering what if circumstances were conducive.